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47765
P-4
N92-13115

MAGELLAN

JJ574450

TDS Mgr: A. Berman
NOPE: A. Short

Project Mgr: A. Spear (JPL)
Mission Dir: J. Scott
LV/Range: STS-TBS/ETR

Launch Date: May 4, 1989
Projected SC Life/DSN Support: 3 years/3 years

Project Responsibility: Jet Propulsion Laboratory (JPL)

Source: SIRD January 1987/NSP May 1988
Sponsor: OSO

A. MISSION DESCRIPTION

The Magellan mission consists of a single spacecraft to be placed in an elliptical orbit about Venus. The main objective of the mission is to perform radar imaging, altimetry, and reflectivity of 90% of the planet for one Venusian year (243 days).

B. FLIGHT PROFILE

The Magellan spacecraft and inertial upper stage (IUS) were deployed via the Space Transportation System (STS) on May 4, 1989. Following deployment, the IUS placed the spacecraft on a planetary injection trajectory for Venus. Venus Orbit Insertion (VOI) of the Magellan Spacecraft is scheduled for August 10, 1990.

C. COVERAGE

1. Coverage Goals

(a) <u>Mission Phase</u>	<u>Period</u>	<u>Passes/Month</u>	<u>Antennas</u>
(b) Launch	4/89	3	26-m
		9	34-m STD
Early Cruise	5/89	80	34-m STD
Cruise	6/89-6/90	12	34-m HEF
		60	34-m STD
		12	70-m
Cruise	7/90	70	70-m
VOI/IOC	8/90	90	70-m
Mapping	9/90-12/90	45	34-HEF
		90	70-m
Mapping	1/91/-5/15/91	90	34-m HEF
		90	34-m STD
Extended Mission Mapping	5/15/91-1/95	90	34-m HEF

2. Network Support

The support provided by the DSN is indicated in the following table:

<u>System</u>	<u>Goldstone</u>				<u>Canberra</u>				<u>Madrid</u>			
	12	14	15	16	42	43	45	46	61	63	65	66
S-band VLBI		P				P				P		
X-band VLBI		P	P			P	P			P	P	
S-band TLM	P	P		*	P	P		*	P	P		*
X-band TLM	P	P	P		P	P	P		P	P	P	
S-band CMD	P	P		*	P	P		*	P	P		*
X-band CMD			P	*			P				P	*
S-band TRK	P	P		*	P	P			P	P		*
X-band TRK	P	P	P		P	P	P		P	P	P	

NOTES: P = Prime

*Initial acquisition only.

D. FREQUENCY ASSIGNMENTS

Frequencies are allocated according to the following table:

<u>System</u>	<u>Uplink (MHz)</u>	<u>Downlink (MHz)</u>	<u>Polarization</u>
S-band TLM	--	2297.9	LIN or RCP
X-band TLM	--	8425.8	RCP
S-band CMD	2116.0	--	LIN or RCP
X-band CMD	7171.5		RCP
S-band TRK	--	2297.9	LIN or RCP
X-band TRK	--	8425.8	RCP or LIN

E. SUPPORT PARAMETERS

The support parameters for the Telemetry, Command, and Support Systems are listed below:

(1) Telemetry

Data Streams	2
Format	PCM (NRZ-L)/PSK/PM
Subcarrier Frequency	22.5, 360, 960 KHz
Bit Rate	40, 1200 b/s and 115.2, 268.8 kb/s
Record	Required

(2) Command

Format	PCM/PSK/PM
Bit Rate	7.8125 or 62.5 b/s
Subcarrier Frequency	16 KHz sinewave

(3) Support

Uplink Power	TBS
Antenna Rate	TBS
Antenna Angle Data	TBS
Antenna Autotrack	Not Required
Doppler Rates	TBS
Recording	
. Analog	TBS
. Digital	Required

F. TRACKING SUPPORT RESPONSIBILITY

The allocation of responsibilities for tracking support is listed in the following table:

<u>Mission Phase</u>	<u>Support Responsibility</u>
STS Launch	TDRSS
IUS Deployment	TDRSS
Planetary Mission	DSN